

Supply and laying of a feeding system, control and data acquisition of dynamometric wagon for testing at the Department of Naval Engineering, "Federico II" University of Naples.



Purchaser: **University "Federico II" of Naples.**

Order: April 2004

Time required: About 5 months.

Mechanism data:

Principal feeding: 400Vac, 350Kva

Wagon feeding: 400Vac, 25 kW+700Vdc 300 kW

Bridge translation: 8 30 kW asynchronous engines with inverter.

Propellers movement: 1 5 kW continuous current engine + 1 1,5 kW alternate current engine

Maximum acceleration: 1m/s

Maximum speed: 36km/h

Description:

The dynamometric wagon on tracks, used for hydrodynamic tests of naval models, needed a renewal in the control and command system in order to increasing the reliability and eliminate the Ward-Leonard command. A recent SIEMENS S7 control device, with the possibility of communication on data bus and CPU with floating point calculation, has been then proposed.

It has been chosen to employ retroactive frequency converters for the movement of the wagon for the maximum speed stability. It has also been employed a regenerative system in order to reduce the dissipation loss.

In particular, all the eight gear engines have been replaced with 30 kW three-phase asynchronous engines. Data communications and parameters will be done by data BUS for data exchange between the same wagon and the controller station to earth. Moreover the control system will be useful for the re-transmission of the scientific parameters to the equipment on board.

All the system is monitored on board by a PC with diagnostic process and report of the alarm signals. The hardware engineering has engineered the system "ex novo" maintaining only small parts of the existing one and applying the newest technology for safety and control functions.